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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/593,232

09/18/2006

Naoki Ito

129407

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25944 7590 01/25/2010

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EXAMINER

LAIOS, MARIA J

ART UNIT

PAPER NUMBER

1795

NOTIFICATION DATE

DELIVERY MODE

01/25/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

OfficeAction25944@oliff.com

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<b>Office Action Summary</b>	<b>Application No.</b> 10/593,232	<b>Applicant(s)</b> ITO, NAOKI	
	<b>Examiner</b> MARIA J. LAIOS	<b>Art Unit</b> 1795	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_ is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,6,9 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20090616</u> . | 6) <input type="checkbox"/> Other: ____.  |

### **DETAILED ACTION**

1. This office action is in response to the amendment filed 23 October 2009. Claims 1, 5 and 6 have been amended. Claims 3, 4, 8 have been cancelled. Claims 9 and 10 have been added. Claims 1, 5, 6, 9 and 10 are currently pending.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Objections***

3. The claim objection of claim 5 has been withdrawn because the claim has been amended.

4. Claim 9 and 10 objected to because of the following informalities: layer should be added to after electrolyte in the second line of the claims. Otherwise it would appear that the electrolyte itself is palladium. The combination of the porous layer and the substrate (27 in figure 1) make the electrolyte layer and the substrate is described as being hydrogen permeable/palladium. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

5. The claim rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for claims 1 and 6 are maintained and repeated below for convenience.

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6. The term "fine" in claims 1 and 6 is a relative term which renders the claim indefinite. The term "fine" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term fine has not been defined in the specification and for the purposes of examination the porous layer needs to contain pores.

***Claim Rejections - 35 USC § 102***

7. The claim rejections under 35 USC 102(b) as being anticipated by Sturm for claims 1, 4, 5 and 6 are withdrawn because the claims have been amended or cancelled.

***Claim Rejections - 35 USC § 103***

8. The claim rejection under 35 USC 103(a) as being unpatentable over Chisholm et al. and Juda et al. for claims 1, 3, 6 and 9 are withdrawn because the claims have been amended or cancelled.

9. Claims 1, 5, 6, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fenton et al. (US 6,638,659 B1) in view of Hiroshi et al. (JP 05-299105).

As to claim 1, 5, 6, 9 and 10, Fenton et al. discloses a solid acid and proton conducting electrolyte (col. 9 lines 13-29) being impregnated into a porous matrix (col. 9 lines 6-8- fine pores within the matrix are described in col. 8 lines 37-50). The matrix containing the solid acid is heat treated (col. 11 lines 38-40). Fenton discloses an electrode adjacent to the porous layer (the cathode catalyst layer deposited upon the membrane-col. 3 lines 50-53). However Fenton

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does not disclose the hydrogen permeable substrate such as palladium. Hiroshi et al. discloses a palladium metal film (14) on the electrolyte (11) on the anode side of the electrolyte (Abstract).

The palladium film is hydrogen permeable and thus purifies the gas sent to the electrolyte.

Therefore it would have been obvious to one of ordinary skill in the art to include the palladium metal film to the electrolyte of Fenton et al. because this would purify the gas entering the anode since only hydrogen is permitted though.

### ***Response to Arguments***

10. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA J. LAIOS whose telephone number is (571)272-9808.

The examiner can normally be reached on Monday - Thursday 10 am -7 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. L./

Examiner, Art Unit 1795

/Dah-Wei D. Yuan/

Supervisory Patent Examiner, Art Unit 1795